ANTIBIOGRAM FOR SELECT BACTERIA OF PUBLIC HEALTH AND CLINICAL IMPORTANCE ISOLATED BY CLINICAL LABORATORIES IN MONTANA 2010

The efficacy of antimicrobial drug therapy is compromised by the emergence and spread of microbes that are resistant to economical, safe, and effective first-line drugs. Antimicrobial susceptibility data generated from testing isolates from individual patients can be very helpful to clinicians, infection control personnel, epidemiologists, and pharmacists if cumulative data from these tests are compiled and presented in a clear and consistent manner.

Twenty seven Laboratories from across Montana provided aggregate antimicrobial susceptibility data from testing performed January 1, 2010 through December 31, 2010 to the Montana Department of Public Health and Human Services (DPHHS). The data were compiled to create a statewide antibiogram using the methodology described by the Clinical and Laboratory Standards Institute, in Document M39-A3, *"Analysis and Presentation of Cumulative Antimicrobial Susceptibility Test Data; Approved Guideline".* Specific recommendations implemented from this document include:

include only final, verified test results

include only diagnostic isolates (not surveillance isolates)

eliminate duplicates by including only the first isolate of species

include only antimicrobial agents routinely tested (not supplemental agents)

report percent susceptible (do not include percent intermediate)

The cumulative state antibiogram is presented to provide Montana clinicians and public health practitioners with data to track antimicrobial susceptibility patterns, raise awareness of antimicrobial resistance, and to identify opportunities to reduce inappropriate antimicrobial usage. These data are intended for surveillance purposes only and should not be used as the primary basis for determining antimicrobial therapy for individual patients.

The tables below summarize the susceptibility patterns for select bacteria of public health and clinical importance.

MONTANA
Department of Public Health & Human Services

MONTANA 2010 ANTIBIOGRAM

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		penicillins			folate inhibitor	ansamycin	glycopeptide	tetracycline	oxazolidone	lipopeptide	streptogramin	carbapenem	cephems		quinolones				macrolide	lincosamide
2010 Gram Positive Isolates	**# of isolates all sources**	Penicillin	Ampicillin	Oxacillin	Trimethoprim-Sulfamethoxazole	Rifampin	Vancomycin	Tetracycline	Linezolid	Daptomycin	Quinupristin-Dalfopristin	Meropenem	Cefotaxime	Ceftriaxone	Levofloxacin	Moxifloxacin	Ofloxacin	**# of isolates non-urine sources**	Erythromycin	Clindamycin
		Percent Susceptible																	**% Susceptible**	
S. aureus	**7043**	(5633) **11%**		(7018) **64%**	(7043) **99%**	(6335) **99%**	(7043) **100%**	(6890) **95%**	(4748) **100%**	(792) **60%**								**2455**	(1555) **62%**	(2177) **80%**
S. pneumoniae	**457**	(366) **78%**			(283) **69%**		(394) **100%**	(371) **77%**				(116) **86%**	(205) **92%**	(239) **91%**	(288) **89%**	(151) **96%**	(106) **96%**	**243**	(356) **62%**	
Enterococcus spp	**735**	(408) **94%**	(704) **93%**				(709) **96%**		(491) **99%**	(92) **98%**										
E.faecalis	**1853**	(1853) **96%**	(1780) **97%**				(1853) **99%**		(1204) **96%**	(204) **99%**	(326) **4%**									
E. faecium	**183**	(183) **19%**	(183) **20%**				(183) **54%**		(134) **89%**											

		aminoglycoside			b-lactam/b-lactamase inhibitor				cephems							quinolones		carbapenems			folate inhibitor	penicillins	
2010 Gram Negative Isolates	**# of isolates all sources**	Gentamicin	Tobramycin	Amikacin	Amoxicillin-Clavulanic Acid	Ampicillin-Sulbactam	Piperacillin-Tazobactam	Ticarcillin-Clavulanic Acid	Cefazolin	Cefuroxime	Cefepime	Ceftazidime	Cefotetan	Cefoxitin	Cefotaxime or Ceftriaxone	Ciprofloxacin	Levofloxacin	Ertapenem	Imipenem	Meropenem	Trimethoprim-Sulfamethoxazole	Pipercillin	Ampicillin
		Percent susceptible																					
E. coli	**14404**	(14322) **94%**	(9712) **95%**	(9308) **100%**	(6145) **88%**	(6934) **68%**	10061 **97%**	(1710) **94%**	(13851) **94%**	(1677) **93%**	(11588) **98%**		(1136) **99%**	(6017) **95%**	(13449) **97%**	(13919) **87%**	(8870) **87%**	(10210) **100%**	(14035) **100%**	(1241) **100%**	(14404) **81%**	(4943) **83%**	(14404) **60%**
K. pneumoniae	**2846**	(2747) **98%**	(1667) **98%**	(1776) **99%**	(1199) **88%**	(1447) **90%**	(2503) **97%**	(413) **98%**	(2798) **95%**	(502) **93%**	(2333) **98%**		(106) **99%**	(1091) **95%**	(2685) **98%**	(2736) **97%**	(1548) **97%**	(1386) **100%**	(2714) **100%**	(197) **100%**	(2846) **94%**	(308) **26%**	(2400) **10%**
Proteus spp.	**733**	(711) **92%**	(438) **93%**	(483) **99%**	(140) **99%**	(358) **83%**	(648) **98%**		(723) **85%**		(561) **95%**			(398) **94%**	(684) **95%**	(730) **80%**	(473) **80%**	(335) **100%**	(336) **90%**		(703) **73%**		(500) **74%**
P. aeruginosa	**1621**	(1621) **83%**	(1018) **95%**	(1158) **94 %**			(1524) **95%**				(1381) **91 %**	(1040) **92%**				(1559) **78%**	(916) **71%**		(1411) **91%**				

MONTANA 2010 ANTIBIOGRAM

ISOLATES FROM URINE ONLY

2010 Gram Positive Isolates	# of isolates urine only	quinolones			Nitrofurantoin	Tetracycline
		Ciprofloxacin	Levofloxacin	Norfloxacin	Nitrofurantoin	Tetracycline
		Percent susceptible				
S. aureus	285				(281) 97%	
Enterococcus spp	339	(318) 86%	(310) 97%	(105) 94%	(295) 95%	(124) 21%
E. faecalis	685	(327) 63%	(327) 68%		(673) 98%	(327) 29%
E. faecium	39				(39) 16%	

2010 Gram Negative Isolates	# of isolates urine only	cephem	quinolone	Nitrofurantoin	folate pathway inhibitor
		Cephalothin	Norfloxacin	Nitrofurantoin	Trimethoprim
		Percent susceptible			
E. coli	6082	(919) 66%	(549) 92%	(6001) 95%	(892) 79%
K. pneumoniae	1023	(181) 86%		(1013) 44%	(171) 93%
Proteus spp.	166			(78) 27%	
P. aeruginosa	50		(50) 89%		

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